III. Remarks

The Examiner's careful consideration is appreciated. In this amendment, claim 4 is cancelled without prejudice, claims 1, 3 and 5-15 are amended, and new claims 18-20 are added. The DETAILED ACTION is discussed below.

Concerning the cited references and the rejections under 35 USC Section 103(a) based on (1) Wu alone or Wu in view of Corderman *et al.* and (2) Wang in view of Wu or Corderman *et al.*, applicant recognizes that the references disclose screening and deposition processes. In the amended claims, however, applicants' system has been more specifically defined to better define the invention.

The invention provides a PVD plasma deposition and matrix system to allow the essentially simultaneous fabrication of multiple, different combinatorial catalyst samples in a batch. Amended claim 1 defines a system wherein separately controllable plasma sources are radially disposed about a central location within a chamber and plasma is directed from a source focused upon a substrate that is positioned in the central location according to x, y and z coordinates that locate an area, within a matrix of separated areas, to which the plasma will be directed. Thus, a predetermined coating area of the substrate is directed to a specified plasma beam by movement of the substrate in three directions: 1) rotationally, such that the specified spot is aligned with the mask and plasma beam from a plasma cluster source positioned at the perimeter of the chamber; and 2) vertically and 3) horizontally by an x-y table such that an area within the substrate target matrix is aligned with the mask and plasma beam.

Wu's system employs a shutter mask technique where the masks are moveable with respect to a fixed substrate to define material deposition; in contrast , the claimed invention controls the deposition of materials by movement of a substrate surface that includes a plurality of separated discrete areas that are serially exposed as the substrate rotates about a central location in the chamber. X-y movement of the substrate allows material deposition to each discrete area in the plane of the substrate. The invention is also patentably distinguished over Corderman *et al.*. Corderman *et al.* applies materials in a continuous gradient and selects desirable materials based upon the location of a material within the spectrum of the gradient. The claimed invention provides material deposition upon discrete areas that are separated from each other and individually exposed to PVD sources according to an experimental materials matrix depending upon factors that include power timing, material, co-deposition or sequentially layered deposition characteristics.

Concerning Wang, Wang similarly employs a gradient selection process and likewise does not disclose or suggest the invention.

Dependent claims 2, 3, 5, 6, 7, and 12 specify a centrally disposed rotator within the chamber; alignments of the focus of each plasma source with the substrate; separately defined circular areas in the substrate moveable with respect to a program controlled x-y table; and deposition and co-deposition parameters. Different matrix arrangements for substrate elements are set out in claims 8-11. In claim 13, the substrate is defined as a surface of a block wherein cylindrical substrate elements forming the selected areas for material deposition extend therefrom. Claim

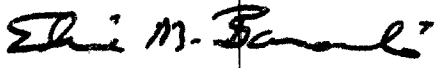
14, dependent on claim 13, further includes a plate mask (Figure 7A and Figure 7B) having a matrix of openings aligned with the substrates to determine the deposition of material on the substrate surface (Figure 4A and Figure 4B). Dependent claims 15-17 define the control of sources in the system of claim 6. Dependent claims 18-20 define the control of sources in the system of claim 13.

Accordingly, applicants submit that the cited references do not disclose or suggest the claimed matrix deposition system for PVD combinatorial studies.

IV. CONCLUSION

Entry of the amendment, reexamination and allowance is respectfully requested. Should the Examiner have any questions or suggestions in view of the foregoing, applicant's undersigned attorney requests that the Examiner initiate a telephone call to the undersigned.

Respectfully submitted,



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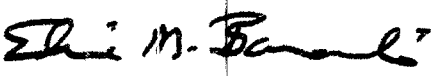
V. CERTIFICATE OF FILING BY ELECTRTONIC TRANSMISSION

I certify that the foregoing Amendment and Response To the Office Communication Mailed on February 23, 2007 accompanied by Form PTO/SB/22, Petition for Extension of Time (three months), are being filed by electronic transmission on August 21, 2007 with the Commissioner for Patents, Group Art Unit 1763, Attention: Examiner Richard R. Bueker, [Alternate address: Commissioner for Patents, Mail Stop Amendment, PO Box 1450, Alexandria, Virginia 22313-1450].



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